

The State of the World's Water: A “Soft Path” for the 21st Century



Finnish Parliamentary Committee on the
Environment and Global Change

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Research for People and the Planet

Conclusions

- ◆ Fresh water touches on all aspects of human and environmental interest.
- ◆ Freshwater issues range from the global to the local.
- ◆ Interest in freshwater issues is growing.
- ◆ New ideas, tools, technologies, and voices are involved in addressing water problems.

The Nature of Water Issues

- ◆ The failure to meet basic human and environmental needs for water is the greatest development failure of the 20th century.
- ◆ Huge numbers of water-related diseases occur every year, with millions of preventable illnesses and deaths.
- ◆ Aquatic ecosystems are under threat of destruction; deteriorating quality and quantity.

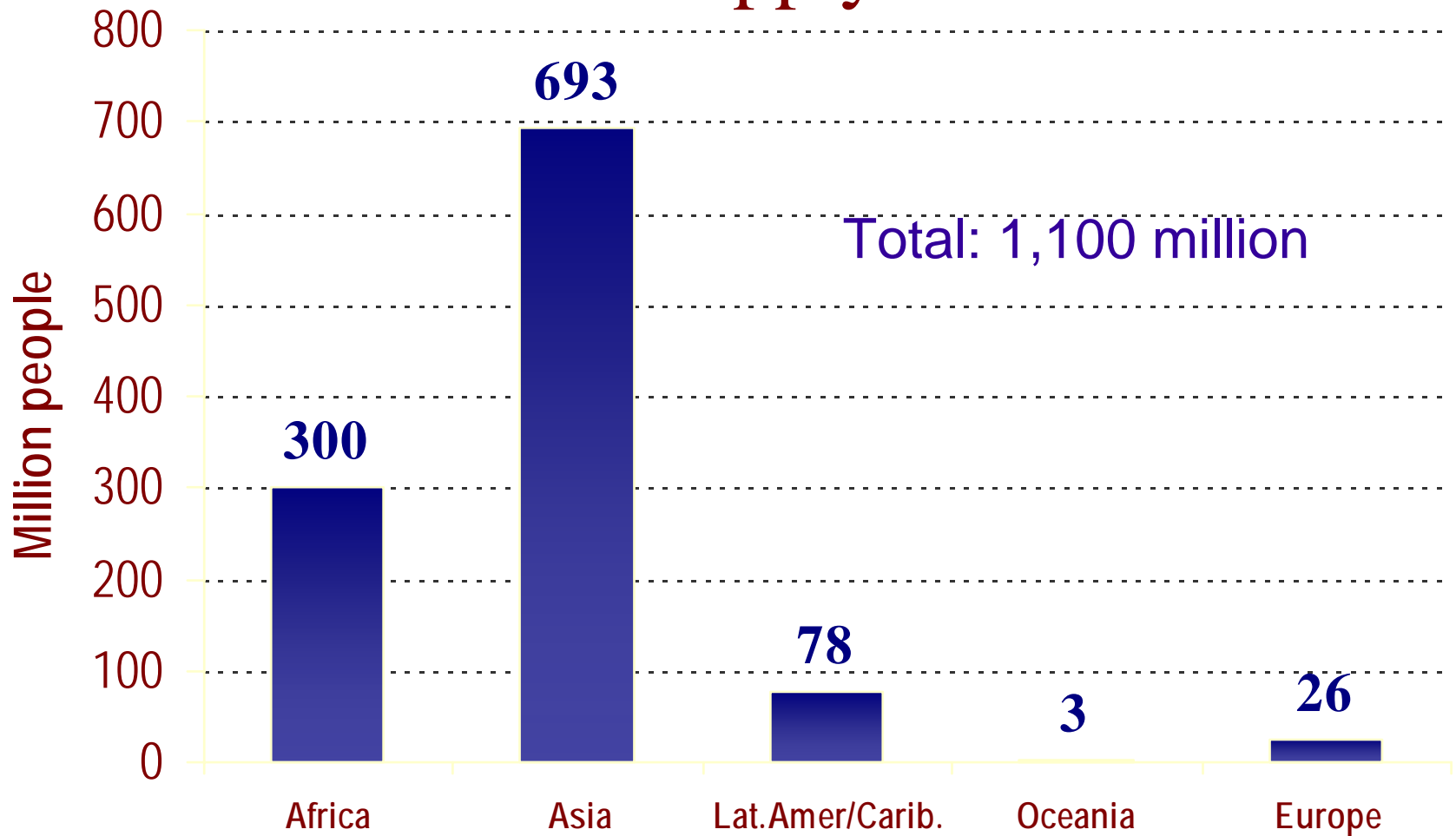
The Nature of Water Issues

- ◆ The debate over water “privatization” is polarized and growing.
- ◆ Water-related conflicts are growing in frequency and intensity, among regions and users. So is the potential for cooperation.
- ◆ Global climate change will affect water resources in new ways.
- ◆ New solutions are available, but not widely implemented.

Unmet Basic Human Needs for Water

- ◆ 1.1 billion people lack access to adequate drinking water.
- ◆ 2.4 billion people lack access to adequate sanitation services.
- ◆ 2.2 to 5 million die annually from preventable water-related diseases.

Population Without Access to Improved Water Supply: 2000



Aggressive Action?

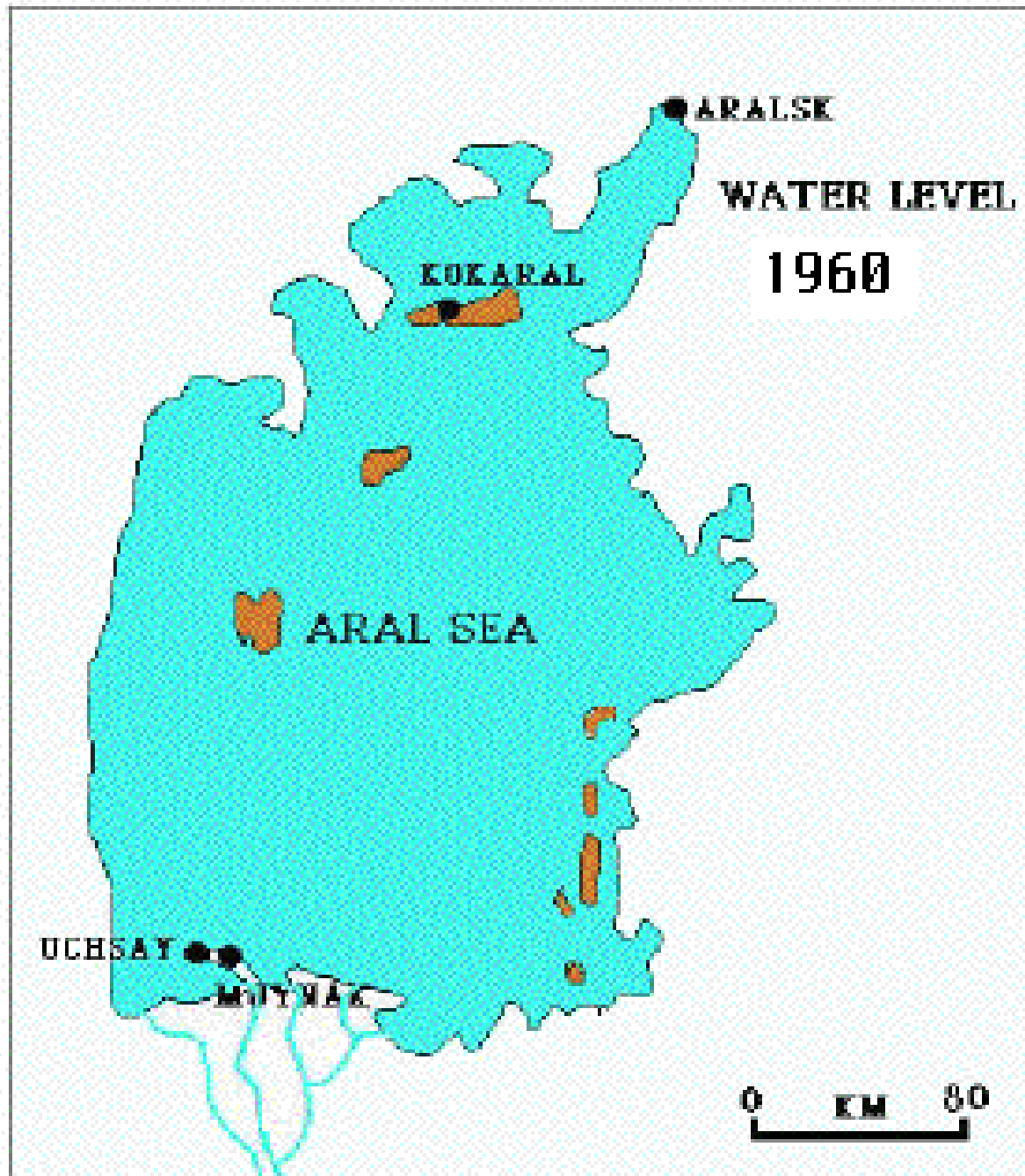
- ◆ Even with aggressive efforts to meet the official UN “Millennium Declaration Goal”^{*} **34 to 76 million people will die**, between now and 2020, of preventable water-related diseases.

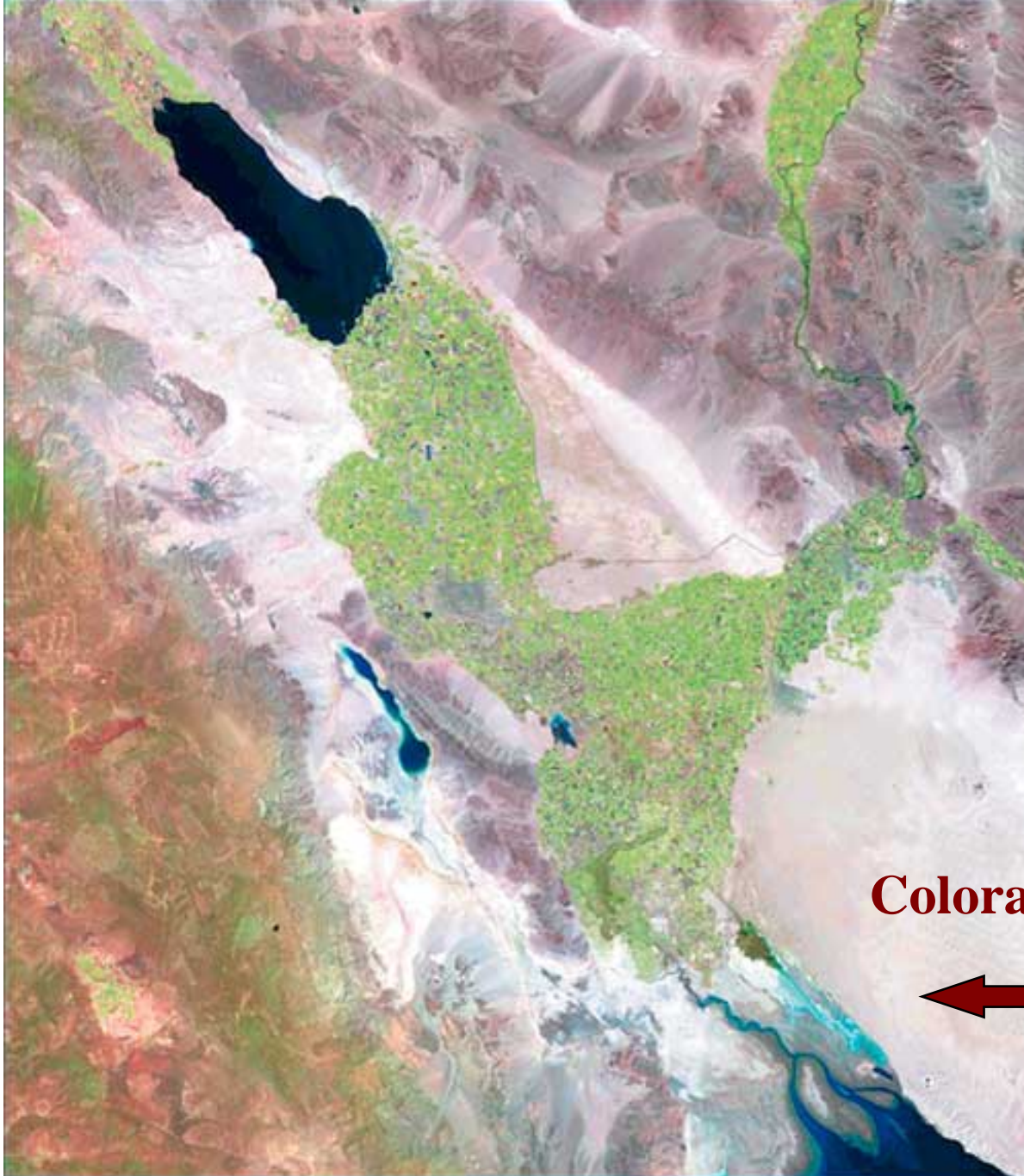
^{*} “To halve the proportion of people who are unable to reach or to afford safe drinking water” and sanitation by 2015.

Meeting Basic Ecological Needs for Water

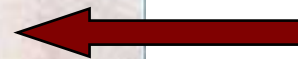
- ◆ Past water policies and decisions have led to major ecological degradation.
- ◆ More than 20 percent of all freshwater fish species are now threatened or endangered because of human use of water.
- ◆ Who speaks for the environment?

Aral Sea 1960 to 2000





Colorado River Delta



Satellite photo of the Colorado River Delta

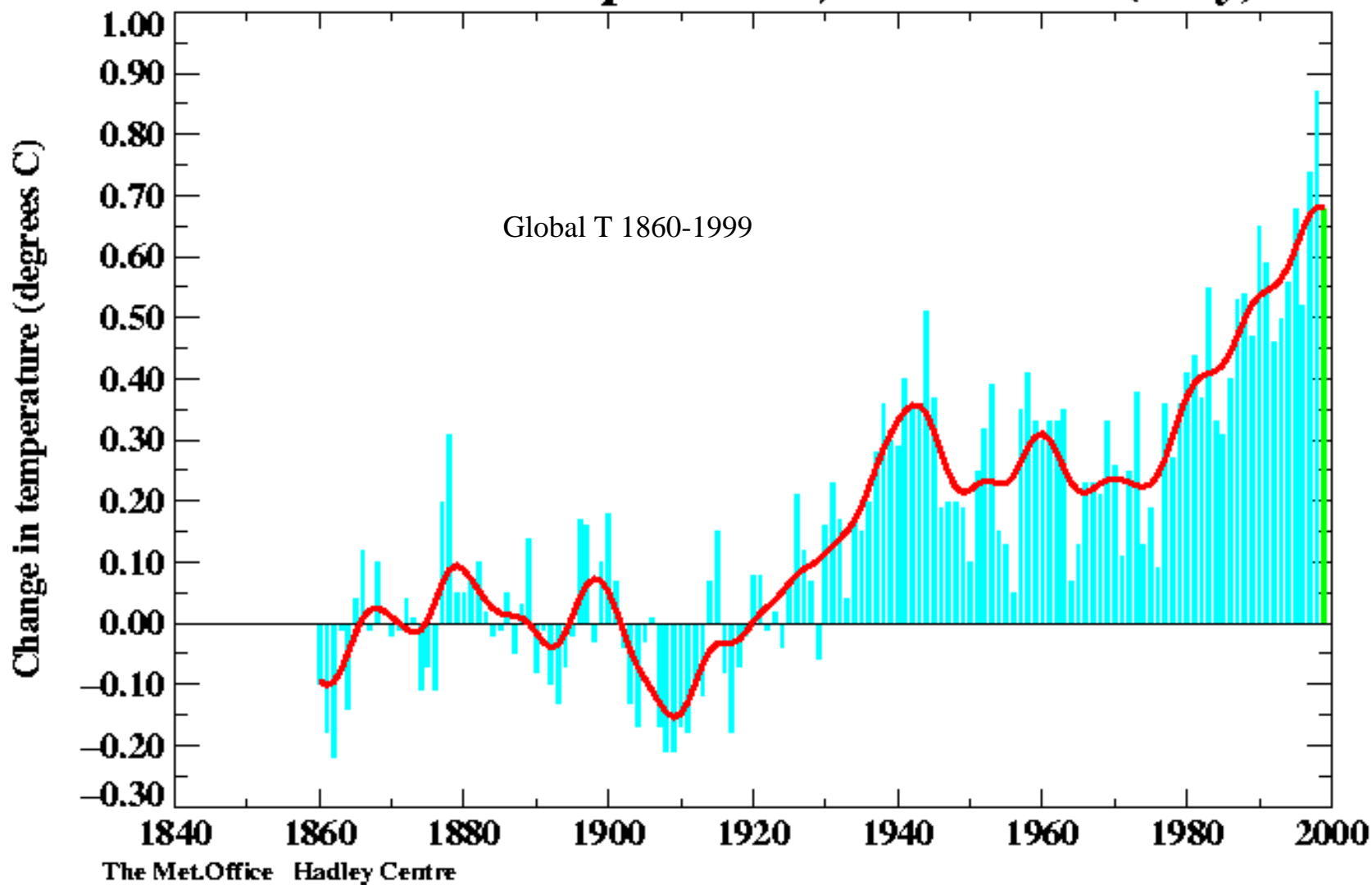
The “New Economy of Water”

- ◆ There is growing pressure to let private companies and markets address water needs.
- ◆ There are many forms of water privatization, with both potential **benefits** and **risks** to the public good.
- ◆ There is **growing opposition** to private involvement in water. Do we understand the risks and benefits?

Understanding the Risks of Climate Change

- ◆ Climate change is a **real problem**.
- ◆ Some climate change – perhaps a lot of climate change – is **unavoidable**.
- ◆ Convincing evidence suggests that the climate is **already changing**.
- ◆ Some of the **most significant impacts** will be on water resources.

Global surface temperatures, 1860 – 1999 (May)



Climate change adds
new uncertainty to the
risks of floods and
droughts.

AP Photo 2000



Understanding Conflict and Cooperation over Water

- ◆ Internationally shared water resources
 - Half of the land area of the earth is “shared.”
 - There are 260 major international river basins.
 - Law and policy for reducing risks are inadequate.
- ◆ Conflicts among users
 - Allocations of water are causing tensions.
 - Agriculture vs. cities vs. environment compete.

So, what do we do?



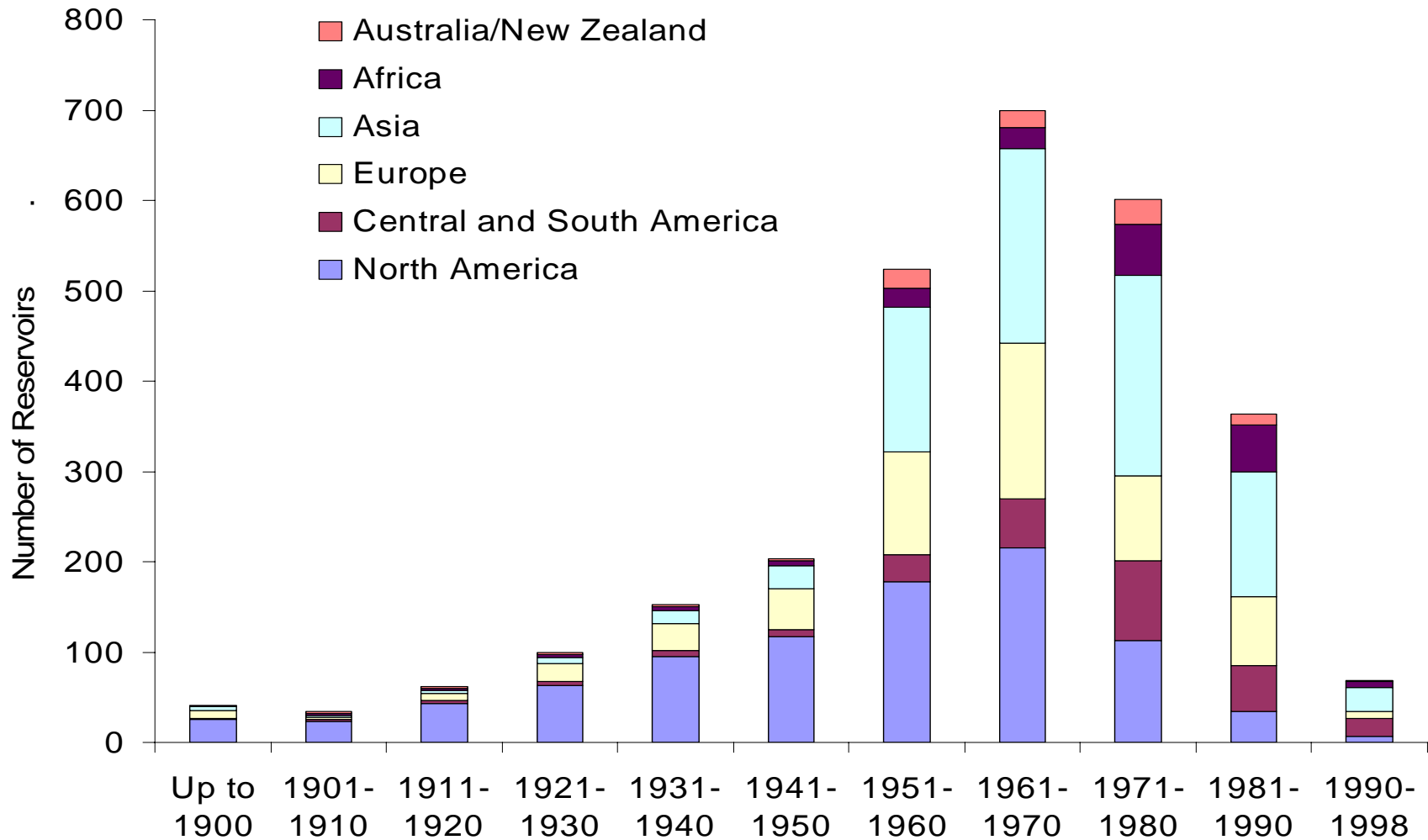
We must rethink the future

- ◆ New approaches are possible, but water planning and management must change.
 - We must think differently about the “value of water” and the concept of “supply.”
 - We must think differently about “demand.”
 - We must think differently about policies, tools, and approaches.

Things are already changing...

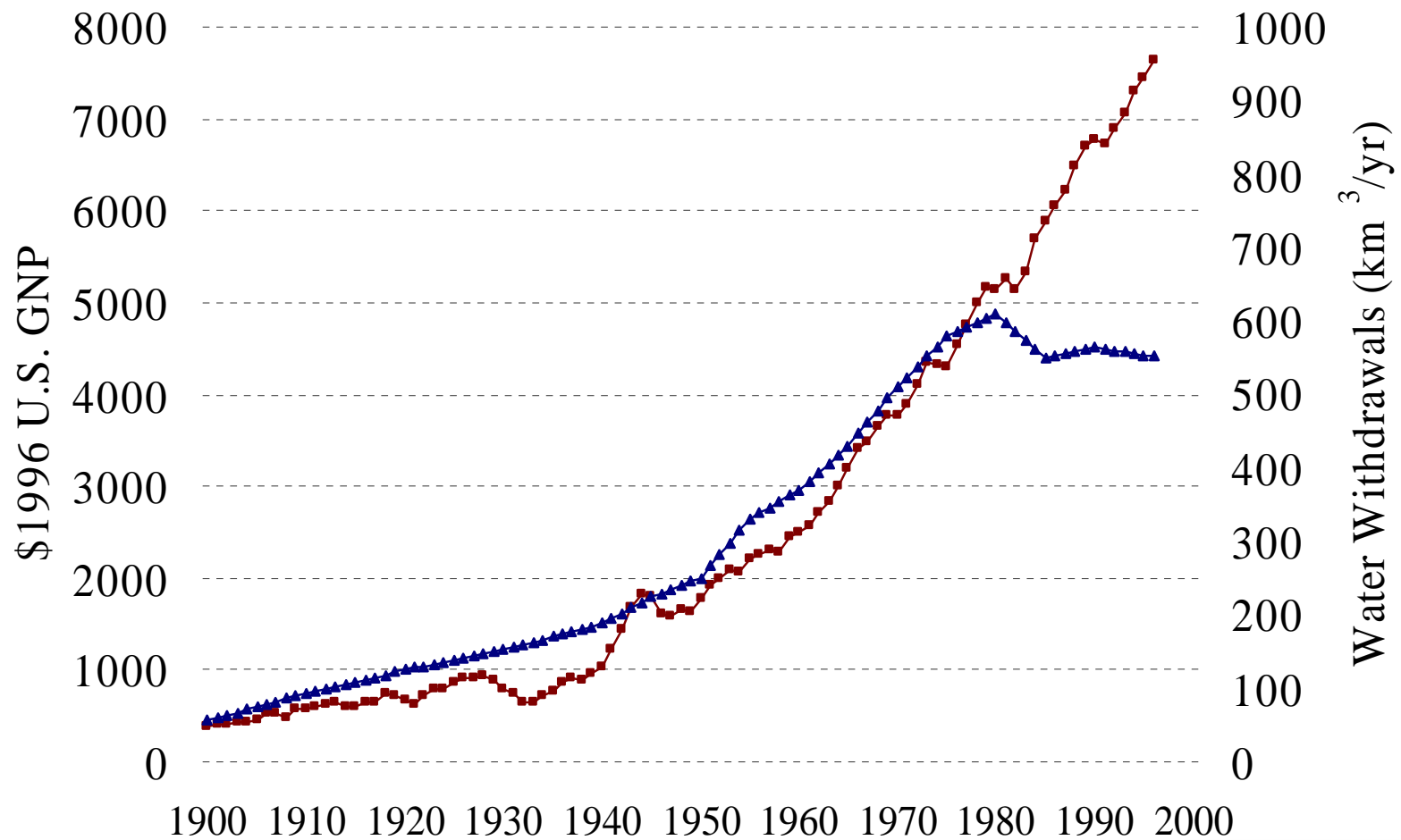
- ◆ Our understanding of the true costs of traditional supply – the “hard path.”
- ◆ Our understanding of the potential to improve efficiency of use.
- ◆ The nature of our economies.
- ◆ Our whole way of thinking about water – toward a “soft path.”

Reservoir construction has slowed.

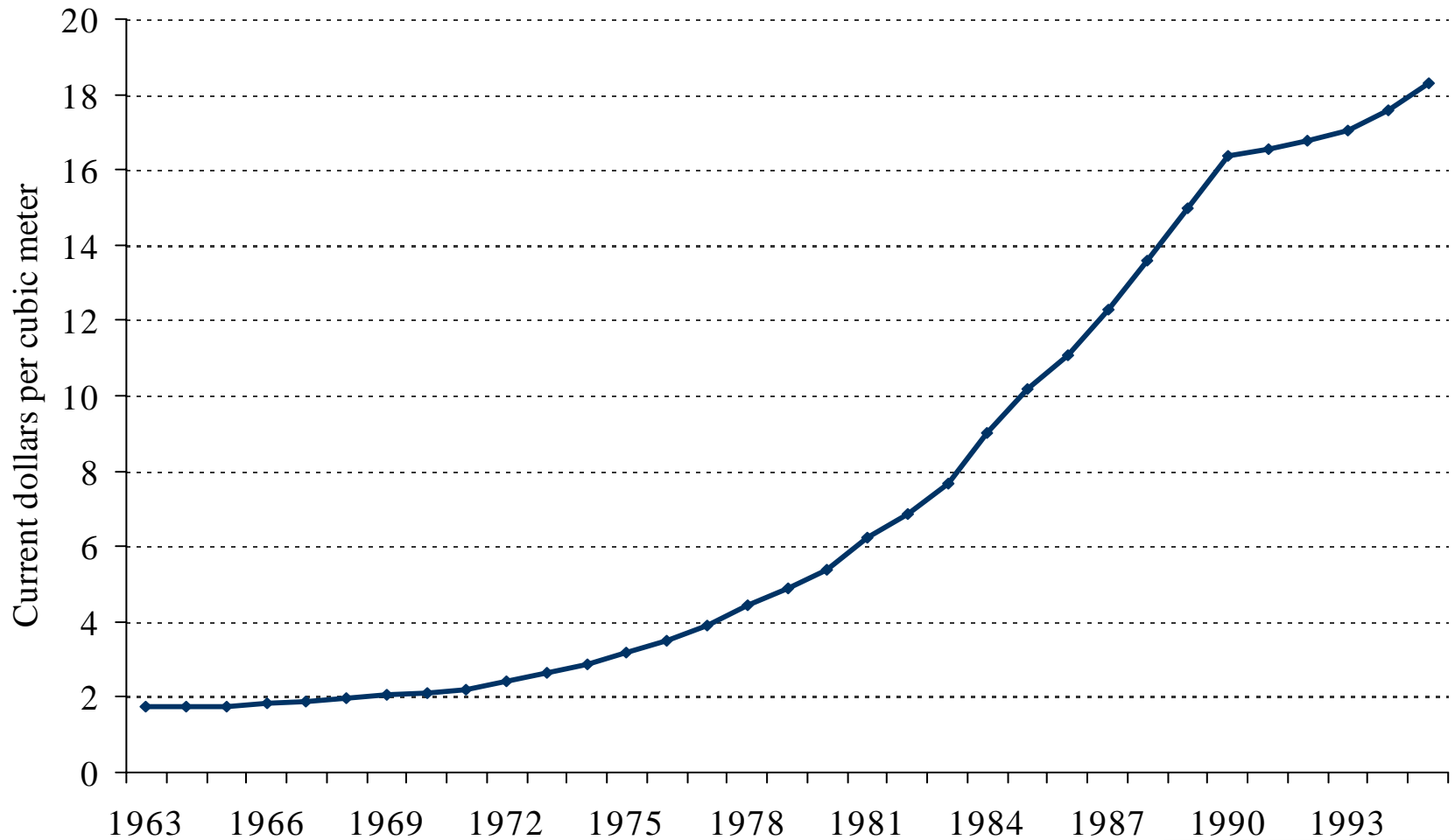


All reservoirs larger than 0.1 km³

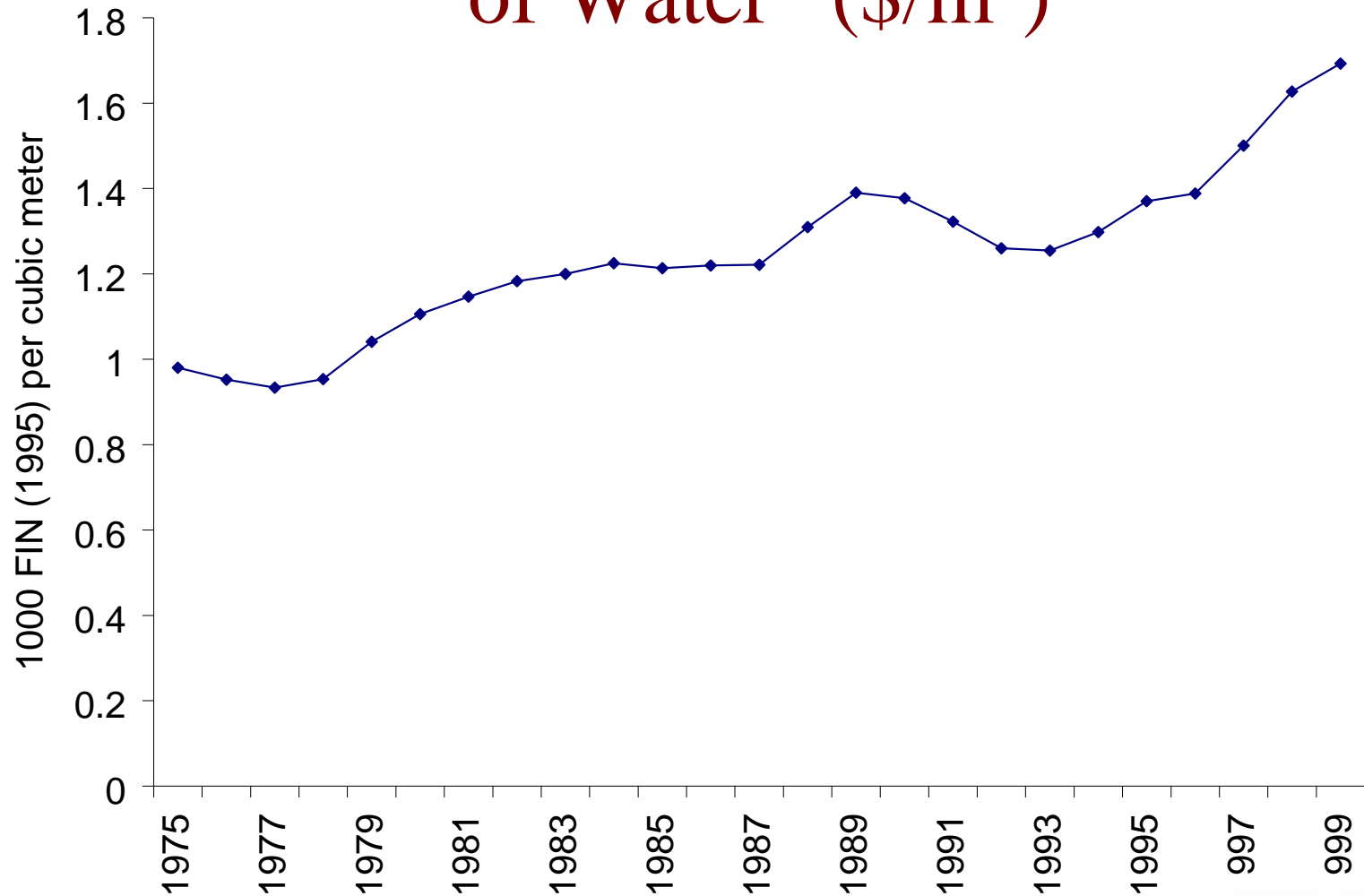
The link between water use and economic growth can be broken



California's Economic "Productivity of Water" (\$/m³)



Finnish Economic “Productivity of Water” (\$/m³)



Widespread efficiency improvements are possible, in all sectors

- ◆ 1930s: 200 tons of water per ton of steel
- ◆ 1980s: 20-30 tons of water per ton of steel
- ◆ 2002: 2-3 tons of water per ton of steel

(and we are changing the structure of our economy...)

- ◆ Agricultural water use can drop and yields can increase with better irrigation technology.

New Tools, Knowledge, Skill?

◆ New Tools

- Technology: water use, monitoring...
- Economics: Rates, rebates, subsidies...
- Conflict resolution, negotiation, ethics.

◆ Knowledge

- Supply” expertise versus water “use.”
- More engineering of water re-use.
- Less engineering; more sociology.

◆ Skills

- Community involvement and management; new planning approaches.



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